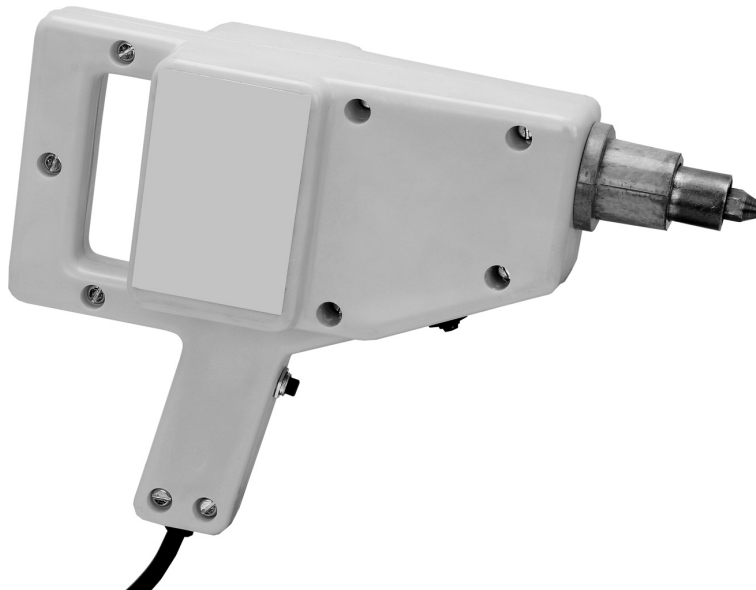




DENT REPAIR STUD WELDER

Model 98357

SET UP AND OPERATING INSTRUCTIONS



Visit our website at: <http://www.harborfreight.com>



**Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.**

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For technical questions or replacement parts, please call 1-800-444-3353.

SAVE THIS MANUAL

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

IMPORTANT SAFETY INFORMATION

In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if

not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

CAUTION

CAUTION, without the safety alert symbol, is used to address practices not related to personal injury.

General Power Tool Safety Warnings



WARNING Read all safety warnings and instructions. *Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference. The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.*

1. **Work area safety**
 - a. **Keep work area clean and well lit.** *Cluttered or dark areas invite accidents.*
 - b. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** *Power tools create sparks which may ignite the dust or fumes.*
 - c. **Keep children and bystanders away while operating a power tool.** *Distractions can cause you to lose control.*

2. Electrical safety

- a. **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with grounded power tools.** *Unmodified plugs and matching outlets will reduce risk of electric shock.*
- b. **Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.** *There is an increased risk of electric shock if your body is grounded.*
- c. **Do not expose power tools to rain or wet conditions.** *Water entering a power tool will increase the risk of electric shock.*
- d. **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** *Damaged or entangled cords increase the risk of electric shock.*
- e. **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** *Use of a cord suitable for outdoor use reduces the risk of electric shock.*
- f. **If operating a power tool in a damp location is unavoidable, use a Ground Fault Circuit Interrupter (GFCI) protected supply.** *Use of a GFCI reduces the risk of electric shock.*

3. Personal safety

- a. **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A**

moment of inattention while operating power tools may result in serious personal injury.

- b. **Use personal protective equipment. Always wear eye protection.** *Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.*
- c. **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** *Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.*
- d. **Do not overreach. Keep proper footing and balance at all times.** *This enables better control of the power tool in unexpected situations.*
- e. **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts.** *Loose clothes, jewelry or long hair can be caught in moving parts.*
- f. **Only use safety equipment that has been approved by an appropriate standards agency.** *Unapproved safety equipment may not provide adequate protection. Eye protection must be ANSI-approved and breathing protection must be NIOSH-approved for the specific hazards in the work area.*

4. Power tool use and care

- a. **Do not force the power tool. Use the correct power tool for your application.** *The correct power tool*

will do the job better and safer at the rate for which it was designed.

- b. **Do not use the power tool if the switch does not turn it on and off.** *Any power tool that cannot be controlled with the switch is dangerous and must be repaired.*
 - c. **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*
 - d. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** *Power tools are dangerous in the hands of untrained users.*
 - e. **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** *Many accidents are caused by poorly maintained power tools.*
 - f. **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** *Use of the power tool for operations different from those intended could result in a hazardous situation.*
5. **Service**
- a. **Have your power tool serviced by a qualified repair person using**

only identical replacement parts. *This will ensure that the safety of the power tool is maintained.*

Specific Safety Warnings

- 1. Maintain labels and nameplates on the tool. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
- 2. Avoid unintentional starting. Prepare to begin work before turning on the tool.
- 3. Do not leave the tool unattended when it is plugged into an electrical outlet. Turn off the tool, and unplug it from its electrical outlet before leaving.
- 4. This product is not a toy. Keep it out of reach of children.
- 5. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. In addition, people with pacemakers should:
 - Avoid operating alone.
 - Do not use with power switch locked on.
 - Properly maintain and inspect to avoid electrical shock.
 - Any power cord must be properly grounded. Ground Fault Circuit Interrupter (GFCI) should also be implemented – it prevents sustained electrical shock.

⚠ WARNING




**INHALATION HAZARD:
Welding and Plasma Cutting Produce
TOXIC FUMES.**

Exposure to welding or cutting exhaust fumes can increase the risk of developing certain cancers, such as cancer of the larynx and lung cancer. Also, some diseases that may be linked to exposure to welding or plasma cutting exhaust fumes are:

- Early onset of Parkinson's Disease
- Heart disease • Ulcers
- Damage to the reproductive organs
- Inflammation of the small intestine or stomach • Kidney damage
- Respiratory diseases such as emphysema, bronchitis, or pneumonia

Use natural or forced air ventilation and wear a respirator approved by NIOSH to protect against the fumes produced to reduce the risk of developing the above illnesses.

7. **WARNING:** This product, when used for welding, or similar applications, produces chemicals known to the State of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5, *et seq.*) Handling the cord on this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling. (California Health & Safety Code § 25249.5, *et seq.*)

8. The warnings, precautions, and instructions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.



**SAVE THESE
INSTRUCTIONS.**

GROUNDING

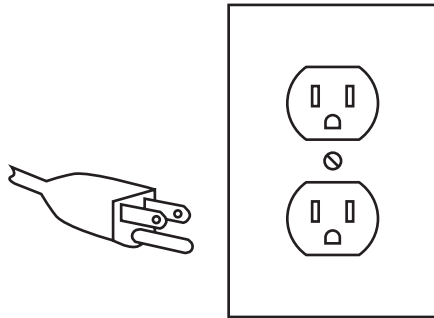
⚠ WARNING

**TO PREVENT
ELECTRIC SHOCK**



**AND DEATH FROM
INCORRECT GROUNDING
WIRE CONNECTION:**
Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

Grounded Tools: Tools with Three Prong Plugs



3-Prong Plug and Outlet

1. Tools marked with "Grounding Required" have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock. **(See 3-Prong Plug and Outlet.)**
2. The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically "live" terminal. **(See 3-Prong Plug and Outlet.)**
3. The tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in the preceding illustration. **(See 3-Prong Plug and Outlet.)**

Extension Cords

1. **Grounded** tools require a three wire extension cord. **Double Insulated** tools can use either a two or three wire extension cord.
2. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. **(See Table A.)**
3. The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. **(See Table A.)**
4. When using more than one extension cord to make up the total length, make sure each cord contains at least the minimum wire size required. **(See Table A.)**
5. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum cord size. **(See Table A.)**
6. If you are using an extension cord outdoors, make sure it is marked with the suffix "W-A" ("W" in Canada) to indicate it is acceptable for outdoor use.
7. Make sure the extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it.
8. Protect the extension cords from sharp objects, excessive heat, and

damp or wet areas.

RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS* (120/240 VOLT)					
NAMEPLATE AMPERES (at full load)	EXTENSION CORD LENGTH				
	25'	50'	75'	100'	150'
0 – 2.0	18	18	18	18	16
2.1 – 3.4	18	18	18	16	14
3.5 – 5.0	18	18	16	14	12
5.1 – 7.0	18	16	14	12	12
7.1 – 12.0	18	14	12	10	-
12.1 – 16.0	14	12	10	-	-
16.1 – 20.0	12	10	-	-	-
TABLE A * Based on limiting the line voltage drop to five volts at 150% of the rated amperes.					

Symbology

	Double Insulated
	Canadian Standards Association
	Underwriters Laboratories, Inc.
V~	Volts Alternating Current
A	Amperes

SPECIFICATIONS

Welding Process	Resistance Weld
Power Requirements	120 V~ / 60 Hz / ~40 A Peak
Circuit Requirement	20 A
Switch	Push Button
Power Cord	14 AWG x 3C / 3-prong grounded plug
Features	High-power low-heat transformer with resettable safety breaker 2 lb. Slide Hammer 100 qty .078" (2mm) copper studs

UNPACKING

When unpacking, check to make sure that the item is intact and undamaged. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

OPERATING INSTRUCTIONS



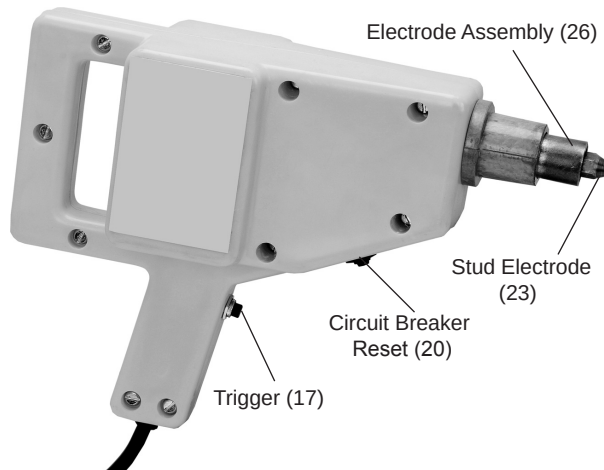
Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Tool Set Up



WARNING TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION: Release the Trigger and unplug the tool from its electrical outlet before performing any inspection, maintenance, or cleaning procedures.

FIGURE 1



Note: For additional information regarding the parts listed in the following pages, refer to the Assembly Diagram on page 12.



CAUTION Always make sure the power cord to the Stud Welder is unplugged from its electrical outlet prior

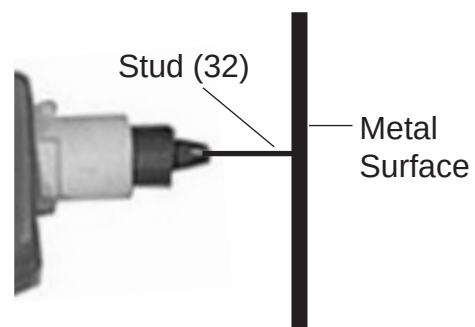
to assembling or making any adjustments to the tool.

Note: Before trying to pull a dent out of your own vehicle, it is recommended that you first practice the procedure on a piece of scrap metal.

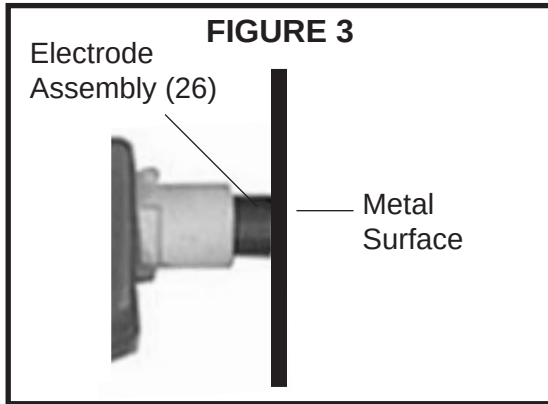
Welding the stud

1. On the location you are going to weld, and in a area as large as the **Electrode Assembly (26)** surrounding it, clean the surface down to the metal (no paint). The entire **Electrode Assembly (26)** needs to evenly contact the surface without interference to weld properly.

FIGURE 2



2. Insert a **Stud (32)** into the hole in the **Stud Electrode (23)**. See **FIGURE 2**.
3. Plug the **Cord (16)** into an outlet capable of handling a 20 amp load.



4. Holding the Stud Welder firmly with both hands and using a well-balanced stance, firmly push the **Stud (32)** against the metal surface until the **Electrode Assembly (26)** is flush with the metal surface. See **FIGURE 3**.
5. **With the Electrode Assembly (26) PERFECTLY SQUARE to the surface**, hold the Stud Welder very steady and squeeze the **Trigger (17)** for only 1/2 to 1 second. Immediately release the **Trigger (17)** after 1/2 to 1 seconds.

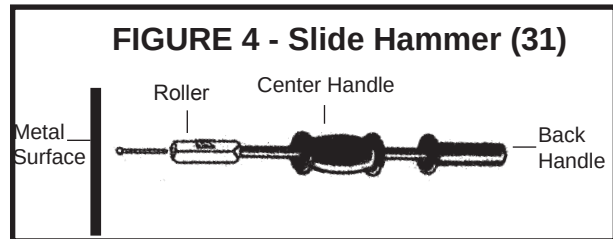
Note: It is normal for approximately 1/4" of discoloration to show around the weld. If you hold the trigger down more than 1 second, the metal skin of the vehicle will burn.

Note: If the Stud Welder remains on too long (Approximately 6 seconds) the circuit breaker will shut the unit down to protect it. To reset the Breaker, allow the unit to cool down and then push the **Circuit Breaker Reset (20)**.

6. Pull the Stud Welder directly back, leaving the **Stud (32)** in place. You will notice the tip of the stud remains exposed.

7. When done with the Stud Welder, unplug the tool and store it safely.

Pulling Out the Dent



1. Slip the end roller of the **Slide Hammer (31)** over the **Stud (32)** and tighten it on the exposed tip of the stud by holding the Back Handle and turning the Roller counterclockwise. See **FIGURE 4**.
2. With one hand on the Center Handle and one on the Back Handle, apply a backward hammering motion, hammering the Center Handle against the Back Handle (away from the metal surface) until the dent has popped out. See **FIGURE 4**.
3. To disengage the **Slide Hammer (31)** from the **Stud (32)**, gently tap the Center Handle forward against the Roller until the **Stud (32)** is released.
4. Cut the **Stud** off and grind it down so it is flush with the metal surface.

MAINTENANCE AND SERVICING



Procedures not specifically explained in this manual must be performed only by a qualified technician.

⚠ WARNING

TO PREVENT SERIOUS INJURY

FROM ACCIDENTAL OPERATION:

Release the Trigger and unplug the tool from its electrical outlet before performing any inspection, maintenance, or cleaning procedures.

TO PREVENT SERIOUS INJURY FROM TOOL FAILURE:

Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.

Cleaning, Maintenance, and Lubrication

1. **BEFORE EACH USE**, inspect the general condition of the tool. Check for loose screws, misalignment or binding of moving parts, cracked or broken parts, damaged electrical wiring, and any other condition that may affect its safe operation.
2. Periodically inspect the power cord for cracks. Replace if necessary.
3. Clean the unit using a damp cloth. Never use solvents.
4. Keep the **Electrode Assembly (26)** free of oxidation by cleaning with fine steel wool.
5. If necessary, use a fine metal file to keep the electrode flat and clean.

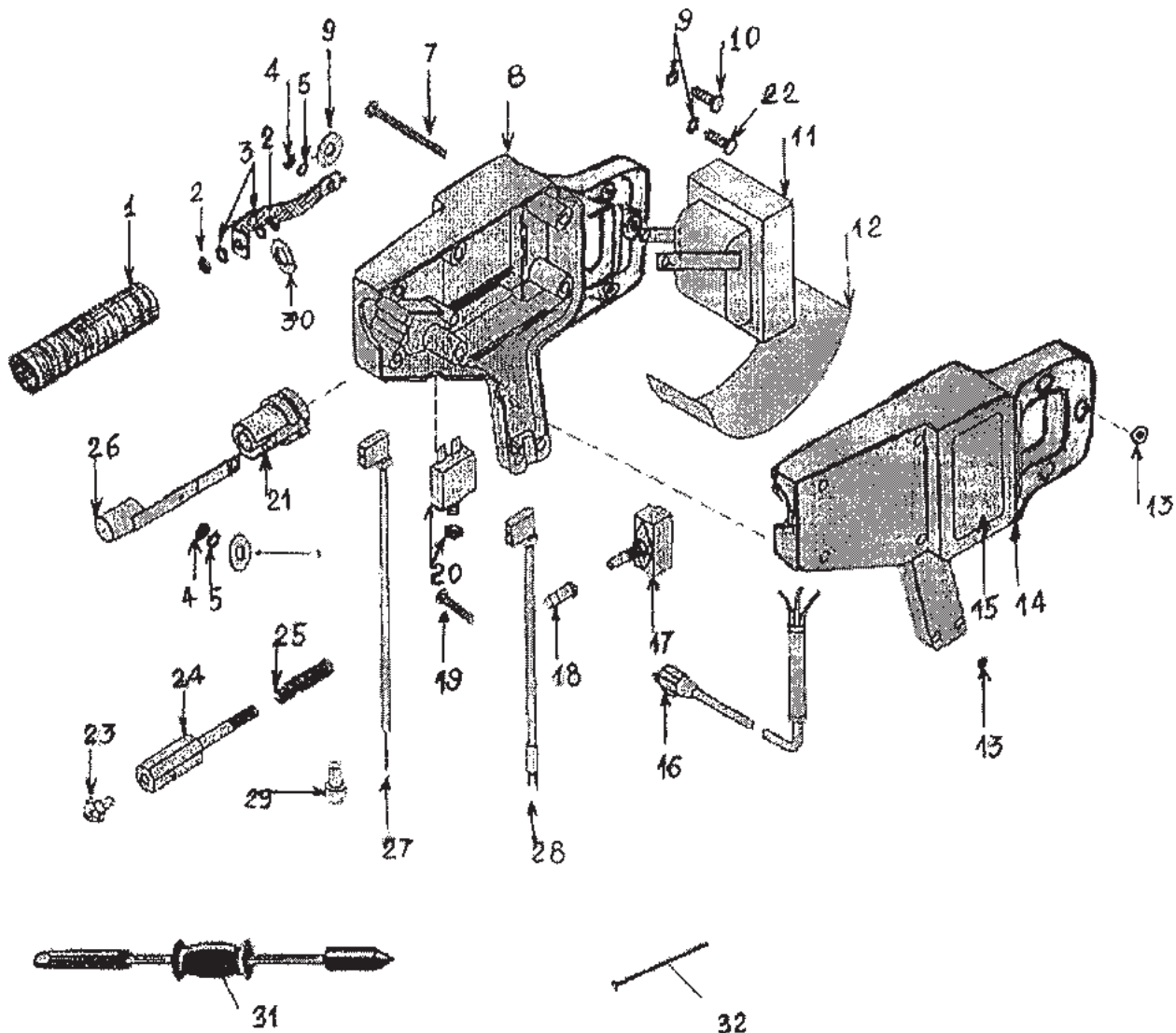
Troubleshooting

Problem	Possible Causes	Likely Solutions
Stud does not Weld, weld Area is Cold	1. Insufficient/no contact to metal surface with Electrode Assembly 2. No power to line cord 3. Stud Welder Circuit Breaker Open	1. Clean metal surface for the entire Electrode Assembly (26) to contact fully, press harder, and ensure Electrode Assembly (26) contacts the surface evenly 2. Check Power Source 3. Press Circuit Breaker Reset
Weak weld, stud does not hold	1. "On Time" Not long enough. 2. Electrode or Stud dirty 3. Weld surface not cleaned down to bare metal	1. Hold trigger longer 2. Clean or replace both 3. Clean surface to the metal
Weld is burning through metal	1. Weld time is too long 2. Using incorrect Stud	1. Shorten weld time 2. Replace the Stud with the correct size and clean the electrode
Circuit breaker continues to trip	1. Circuit rating not large enough 2. Electrical fault in Welder	1. Connect to 20 A dedicated circuit 2. Have qualified technician service welder

PARTS LIST AND ASSEMBLY DIAGRAM

Part	Description	Q'ty
1	Insulator Sleeve	1
2	Nut	2
3	Washer	2
4	Nut	2
5	Split Lock Washer	2
6	Braided Strap	1
7	Screw	6
8	Case (right)	1
9	Washer	4
10	Screw	1
11	Transformer	1
12	Insulator	1
13	Nut	8
14	Case (left)	1
15	Label	1
16	Cord	1

Part	Description	Q'ty
17	Trigger	1
18	Trigger Boot	1
19	Screw	2
20	Circuit Breaker Reset	1
21	Insulator F.R.P.	1
22	Screw	1
23	Stud Electrode	1
24	Sliding Electrode	1
25	Spring	1
26	Electrode Assembly	1
27	Wire Assembly	1
28	Wire Assembly	1
29	Terminal	1
30	Split Washer	1
31	Slide Hammer	1
32	2mm Studs (100/Bag)	1



PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. **THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.**

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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